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WHAT TO DO FIRST,

IN

ACCIDENTS OR POISONING.

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BY

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PREFACE.

Whoever has seen how invaluable, in the presence of an accident, is the man or woman with a cool head, a steady hand, and some knowledge of what is best to be done, will not fail to appreciate the desirability of possessing these qualifications. To have them in an emergency, one must acquire them before it arises, and it is with the hope of aiding any who wish to prepare themselves for such demands upon their own resources that the following suggestions have been put together. They are not meant to be elaborate, but simple and practicable. They cannot take the place of calling a physician or surgeon, but may fill up with helpful action what might otherwise be a period of inaction and despair, before skilled assistance arrives. With this view I trust they may prove of some value to the public, to whom they are offered.

220 *South* 40*th Street, Philadelphia,*
June 10*th*, 1880.

WHAT TO DO FIRST,

IN

ACCIDENTS OR POISONING.

It will not be possible, in a work of the scope of this, to consider any accidents except such as are of tolerably common occurrence. Those that we shall consider will be arranged under the following heads:—

CLASS I. OBSTRUCTIONS TO RESPIRATION.

- DROWNING.
- HANGING.
- CHOKING.
- SUFFOCATION WITH NOXIOUS GASES.

CLASS II. FOREIGN BODIES IN THE NOSE OR EAR.

CLASS III. FITS, OR SEIZURES, OF VARIOUS KINDS.

- FAINTING.
- HYSTERICS.
- EPILEPTIC FITS.
- CONVULSIONS FROM IRRITATIVE CAUSES.
- APOPLEXY.
- INTOXICATION.*
- STUNNING.
- CATALEPSY.

* This is not a classification according to causes, but symptoms.

CLASS IV. EFFECTS OF EXTREME COLD AND HEAT.

FREEZING.
BURNS AND SCALDS.
SUNSTROKE.

CLASS V. INJURIES OF THE BONES AND JOINTS.

SPRAINS.
DISLOCATIONS.
FRACTURES.

CLASS VI. WOUNDS.

CONTUSED WOUNDS.
LACERATED WOUNDS.
PUNCTURED WOUNDS.
POISONED WOUNDS.
INCISED WOUNDS.
GUNSHOT WOUNDS.
HEMORRHAGE. (General.)
HEMORRHAGE. (Special.) { Nose. Lungs. Stomach. Internal.

CLASS VII. RAILROAD AND MACHINERY ACCIDENTS.

TRANSPORTATION OF INJURED PERSONS.

CLASS VIII. POISONS.

CLASS I.

OBSTRUCTIONS TO RESPIRATION.

DROWNING.

Of drowning it may seem absurd to say that the first thing to be done is to remove the person exposed to it from the water; yet I well remember to have seen, some years ago, the revolting spectacle of a woman's body, fastened with a rope, floating in a river, and gazed at by hundreds of curious people. Upon inquiry, a policeman gravely informed me that no one dared take it out before the arrival of the Coroner. This is a mistake; any one who thinks there is a chance of resuscitation should remove from the water a person presumed to have been drowned, and at once set about the work. This can be best done by freeing the body from any clothing that binds the neck, chest, or waist, turning it over upon the face for a moment and thrusting a finger into the mouth and sweeping it round, to bring away any

thing that may have gotten in or accumulated there. Then the body should be laid out flat on the back, with something a few inches high under the shoulders (anything will do, a folded blanket, or shawl, or coat, or a stick of wood), so as to cause the neck to be stretched out and the chin to be carried far from the chest. The tongue should now be drawn well forward out of the mouth (it must be held with a cloth or it will slip away),

and the effort to secure artificial respiration begun. The simplest way to do this is for some one to place himself on his knees behind the head, seize both arms near the elbows and sweep them round horizontally, away from the body and over the head till they meet above it, when a good, strong pull must be made upon them, and kept up a few

seconds. This whole manœuvre should last about three seconds. It effects an inspiration—fills the lungs with air, by drawing the ribs up and so enlarging the cavity of the chest. The second manœuvre consists simply in returning the arms to their former position alongside the chest, and then making firm pressure against the lower ribs, so as to drive the air out of the chest and effect an act of expiration. This need occupy but a second of time.

If this plan is regularly carried out it will make about sixteen complete acts of respiration in a minute. It should be kept up for a long time, and not abandoned until a competent person has ascertained that the heart has ceased to beat. The cessation of the pulse at the wrists amounts to nothing as a sign of death; and often life is pre-

sent when only a most acute and practiced ear can detect the sound of the heart.

It is important that the wet clothing shall be removed from a drowned person. This can always be done without interrupting the artificial respiration. If exposure must be avoided, something may be laid over the body (a coat, a shawl, a blanket, a sail), and the wet clothes loosened under it and drawn down over the feet. Then the body may be quickly slipped on to something dry, and covered with some other fabric, if the first has become wet, while this, in its turn, is pulled away from underneath.

Warmth may be now secured by any means which ingenuity may suggest—hot bricks or stones, or even boards that have lain in the summer sun. At the seashore there is plenty of hot sand, and often plenty of baking bathing costumes. The body and limbs may be gently but constantly rubbed, to help the blood in its labored circulation. None of these things need interfere with the efforts to secure respiration, which must be uninterrupted.

It is of advantage, if they can be gotten, to apply smelling salts to the nose, and to give some

stimulant as soon as it can be swallowed. There should be no pottering with teaspoonful doses, but a good tablespoonful of whisky or brandy be given every few minutes, till a teacupful has been used, or the danger point is passed.

As natural respiration begins to be attempted, it should be aided as much as possible by timing the artificial to it. Little by little it will take the place of this, but must not be left unwatched for some time.

Only danger from cold or pressing necessity should permit the removal from one place to another of a person who is being resuscitated, before this has been thoroughly accomplished. When accomplished, however, the person should be put in a warm bed, being carried carefully, with the head low, and a watch kept to see that the breathing does not suddenly stop.

HANGING.

In regard to this a remark may be made which should be as needless as the first about drowning. In describing the quizzing of some medical students, Albert Smith makes Mr. Manhug reply to the question what he would do if called to a man

who had hanged himself? "Cut him down, sir." But I have heard, among others, of a case where the warden of a prison, discovering a convict who had hanged himself, instead of first following Mr. Manhug's humane plan of procedure, ran straightway to tell his superior officer, and came back with him just too late to rescue the poor suicide.*

The first duty to one strangled is to remove the instrument of strangulation, whatever it may be. After this artificial respiration must be instituted, as described above, and the warmth of the body kept up.

STRANGLING.

Strangling with the hand, or a cord, or anything that can be used for this purpose, should be treated the same way.

CHOKING.

Choking with foreign substances in the throat

* More recently the following item was published in the *Public Ledger*, February 17th, 1880:—"An extraordinary incident, which would be absolutely incredible were not its truth amply vouched for, has just occurred at Marseilles. A man, living at L'Estaque, hanged himself at the door of his house, with a girdle of wool. A neighbor having given the alarm, a number of persons rushed up, but they never thought of cutting the man down, and calmly watched him as he writhed in the death agony, which was very long. An officer of customs, who reached the spot a quarter of an hour after the crowd had begun to collect, released the victim, but it was then too late; he had ceased to breathe.

demands their removal as soon as possible. Crusts or bones may often be pulled out by one with a cool head and steady fingers. If not, of course, medical help is indispensable. Children not infrequently get buttons, or coins, or marbles in their throats, and come near choking to death. Such things may be pulled out or expelled by vomiting, if this can be provoked; if not, I do not care to repeat the common advice, to try to poke them down; but think that responsibility may well be left for the surgeon.

If pins get stuck in the mouth or throat, it is sometimes an extremely delicate matter to remove them. Sometimes, on the other hand, they may be grasped with the fingers or a pair of scissors—used like forceps—and pulled out. If this cannot be done, the patient should be made to lie down, and kept as quiet as possible in body and mind, till some one comes who can give relief. *

If foreign bodies get into the windpipe they will soon be coughed out, or require surgical skill for their removal. Moderate blows on the back, with the open hand, sometimes aid the coughing act.

*The practice, by adults, of putting pins in the mouth is neither very clean nor very safe, and is to be discountenanced, for both these reasons.

In any case where the breathing is not seriously interfered with, it will be most prudent for non-medical persons to keep "hands off." For there may no longer be anything in the throat, though it appears there is; and it can do no good to make groping efforts to bring away foreign substances that have already gone down into the stomach, only leaving behind an irritation which deceives the patients and their friends.

SUFFOCATION WITH NOXIOUS GASES AND VAPORS.

This calls for instant removal to the fresh air, and the employment of artificial respiration, as described in speaking of Drowning, till the natural is re-established.

CLASS II.

FOREIGN BODIES IN THE NOSE OR EAR.

Children sometimes place, or have placed, in their noses or ears small bodies, such as peas, marbles, etc. If the nose be the part chosen the wisest plan is to try to expel the obstacle by blowing. If this does not soon succeed, reasonable efforts may be made to fish it out, with a hair-pin or something of that sort; but these must not be too prolonged; for, if a surgeon must be called, the sooner the better. The longer it is delayed, the harder will be his work and the worse for the child. The same is true of efforts to remove foreign bodies from the ear. In case peas or beans are used in these sports, the danger is increased by the fact that if they absorb any moisture they swell up and are very difficult to get away.

If insects get into the nose or ear, some sort of oil or glycerine should be poured in upon them. This will dislodge them better than anything else.

CLASS III.

FITS, OR SEIZURES OF VARIOUS KINDS.

FAINTING.

Fainting is too familiar to need much detail of symptoms. It is due to a temporary weakening or pause in the heart's action, causing a diminution or suspension of the circulation of blood in the brain, and a consequent loss of consciousness. This is accompanied with a loss of muscular power, so that the individual, if standing, falls. The pallor of fainting is very well known, and is simply a signal of the like bloodlessness which obtains in the brain itself. Usually no treatment is demanded in fainting, for a wise provision of Nature puts the person who faints in the best position for recovery, that is, lying down. But if in any way this is prevented from happening of itself, it should be brought about by a bystander. A fainting person must be laid out flat at once. The head must be put as low as, or lower than, the body, so that the heart may not have to work against the law of

gravitation in sending blood to the brain. Sprinkling water upon the face and holding smelling salts to the nose tend to excite the nerves of sensation, and rouse the brain and heart to renewed activity. So they are useful. Nothing else is necessary; but of all, the first, the indispensable thing, is to lay the fainting person down flat. Nothing should be allowed to interfere with this.

HYSTERICS.

Hysterics—not hysteria, for that is usually a long and inscrutable nervous disease—but fits of hysterics, marked by prolonged and uncontrollable laughing or crying, are best treated by the exercise of calmness and patience on the part of the bystanders, sometimes by taking no notice of the attack, or by leaving the unfortunate sufferer in a room by herself, or himself—for men are at times subject to this curious disorder. Heroic measures, like dashing water into the face, and so forth, are not to be generally recommended.

EPILEPTIC FITS.

In epileptic fits there is usually a pallor of the face, a peculiar cry, a loss of consciousness, and then violent convulsions. They are to be treated

very much like fainting fits, because in them also the brain is temporarily bloodless. At the same time any movements calculated to injure the person must be controlled. There is no use in struggling against such as will do no injury; they had better be simply regulated, and no attempt made to entirely prevent them; but a folded towel or a piece of soft wood may be—if it can be—thrust between the teeth, to prevent the usual biting of the tongue. When the height of the convulsion is passed, rest, quiet, and perhaps a moderate stimulation may be secured. Here again the flat position of the body must be obtained.

I remember, one summer, at the seashore, to have seen some ill-advised, though kind-hearted, persons walking a boy up and down the beach during an epileptic attack, because, from his pallid face, they thought he was suffering from the cold; and they were much astonished at the rapidity with which he regained consciousness when laid out flat on the sand.

CONVULSIONS.

Convulsions from irritative causes, so common among children, call for a prompt emetic, and are

often much alleviated by applying cold to the head and placing the body in a very warm bath.

APOPLEXY.

Apoplexy consists of the rupture of a blood vessel in the brain, and is marked by a greater or less loss of consciousness, heavy, snoring breathing, and usually a deeply flushed face.

For this, rest and cold to the head constitute the best treatment until medical advice, which is indispensable, can be obtained.

INTOXICATION.

Intoxication sometimes closely resembles apoplexy, and should be treated in the same way until its identity can be safely established, for which the odor of the breath is a useful guide. Then an emetic should be given, and if any hartshorn is at hand, a teaspoonful of this in a teacupful of water. A large draught of vinegar will often go a great way toward sobering an intoxicated person. But it must be borne in mind that if a mistake be made—as has been—and the trouble be an apoplexy, no more dangerous thing could be done than to give an emetic.

STUNNING.

If unconsciousness has been caused by a blow upon the head, the best thing to do is to lay the patient out flat on the back, loosen any clothing that binds the neck or waist, and secure quiet and plenty of fresh air. If the skin becomes cold and clammy, heat should be applied to the feet and stomach. No whisky or brandy should be given, except by a doctor's order.

CATALEPSY.

Catalepsy is a very rare state, resembling death. It affords time enough for summoning a doctor, and this is the only sensible thing to do under these circumstances.

CLASS IV.

EFFECTS OF EXTREME COLD AND HEAT.

FREEZING.

Freezing sometimes takes place in so insidious a way that the sufferer is not aware of it till great damage has been done. Toes are perhaps oftenest frozen or frost-bitten. This results from the practice of wearing tight and insufficient coverings on the feet. When it occurs, it is best treated by gradually bringing the temperature up to that which is normal—about 100° Fahrenheit—and maintaining it there. Warm baths, gentle friction, and afterward covering with a thick, hot poultice, is the best thing that can be done until medical help can be obtained. This is important in such cases, because not infrequently gangrene follows the freezing of the feet, making it necessary to amputate parts of them. Frozen fingers, ears, or noses are of less frequent occurrence, but must be treated on the same principles.

If the whole body has been exposed to extreme

cold, there will follow a depression which requires the most cautious treatment. To restore its warmth is the first demand, and for this a warm bath, made gradually warmer until as hot as can be well borne, or surrounding with heated blankets, or exposure before an open fire, may be used. At the same time stimulants may be given internally, such as hot tea or coffee, with the addition of spirits.

BURNS OR SCALDS.

These are usually dangerous in proportion to their extent and depth. Those which involve as much as half the surface of the skin are almost necessarily fatal. Their treatment may be divided under two heads.

The first is for the moment of the accident. When clothes are on fire the wearer must not run about, but lie down and be covered with a rug, or carpet, or shawl, or coat—anything which will exclude the air and smother the flame. If, in fright, the sufferer lose presence of mind, some bystander must take the responsibility of throwing her (for these accidents usually happen to women, on account of the character of their clothing) down and enveloping her with some thick cover.

Afterward, the burned part must be disturbed as little as possible. It is customary in hospitals to clip away the clothing and envelope the patient in lint soaked in "Carron oil," a mixture of equal parts of linseed oil and lime water, and administer stimulants and anodynes. Since, however, I have never known a person severely and extensively burned to recover under this treatment, I venture to suggest the immersion of the entire body in a bath, which shall be kept as long as necessary (and this may be several days) at a temperature of 100°, or more. At the same time some stimulant should be given, and laudanum, in twenty-drop doses to an adult, to allay the suffering. Of course, medical advice will be taken in such grave circumstances.

Lesser burns are best treated by applying a cloth soaked in a strong solution of baking soda—the bicarbonate. This usually allays the pain more effectually than anything else that is known. Carron oil is a good application for such burns. Anything may be used which will prevent friction and exclude the air; but nothing should be used which will stick in cakes and prevent after-examination, or make this very painful. Flour and

cotton batting, though often recommended, are subject to these drawbacks, and had better be avoided. For small burns simple cold water is better in every way than these.

Burns with acids must be deluged with water and then treated in the same way; those with *caustic alkalies* by an application of vinegar.

Lime sometimes gets into the eyes, and may there do great damage. It should be treated with free washing, deluging the eye, in fact, until all is washed away. A little vinegar may be added to the water, say a tablespoonful to the teacupful, at first.

If acids or alkalies are swallowed they must be treated as described in speaking of poisons. (See Poisons.)

SUNSTROKE.

Sunstroke, or more properly heat stroke, is not even usually due to the direct rays of the sun, but to a prolonged elevation of the bodily temperature, oftenest while working, and especially in confined places. When it takes place in the open air it is apt to be on oppressive, heavy, or murky days. It is generally preceded for some time by pain in the head and a sense of oppression. The attack,

however, culminates in a loss of consciousness, with heavy, labored breathing, and an intense, burning, dry heat of the skin. The absence of perspiration in the presence of so great heat is one of the most characteristic symptoms of heat stroke.

When it occurs the thing to be done is to lower the temperature. As much of the clothing as possible must be removed, cold must be applied to the head and body, and ice may be rubbed over the chest and placed in the armpits.

Pouring cold water over the body is not to be advised, as it conveys a needless shock to the system; but there is nothing better than to place the body in a cold bath, or to wrap it in sheets kept wet and cold by renewed applications of cold water or ice. After awhile consciousness will return. Then the cold may be discontinued, to be renewed only if the surface becomes again very hot—that is, hot in contrast to that of a well person, not in contrast to the ice or water that has been used—or in case consciousness should be lost again.

It must always be remembered that sunstroke, or heat stroke, is a very dangerous thing, and may be followed by very grave and permanent impairment of the intellect.

CLASS V.

INJURIES OF THE BONES AND JOINTS.

The most frequent injuries to the bones and joints are sprains, dislocations and fractures.

SPRAINS.

Sprains must be treated by rest, and heat or cold, as is best suited to each case. Sprains of the finger or wrist usually require cold and moist applications. Sprains of the ankle should never be treated lightly. In them there is not infrequently a little fracture of the inner surface of one of the leg bones that form the ankle joint. This complication gives rise to so much trouble, and requires such skillful and patient treatment, that it has come to be believed that it is better to have a broken leg than a sprained ankle. The general principle, however, in the case of a sprained ankle is, first to put the joint at complete rest, allay inflammation, if it arises, and afterward promote the absorption of inflammatory products. For the

first a splint and bandage are usually necessary; for the second, friction, kneading of the joint, at times careful motion of it, and the use of moist heat. But in few cases is it truer that "he who doctors himself has a fool for a patient."

DISLOCATIONS.

These injuries consist of the displacement of the articular or joint end of a bone. They cannot occur (except when the same joint has been out of place before) without the tearing of ligaments whose function it is to keep the joint close. The simplest dislocations, those of fingers, can usually be reduced—or put in place—by strong pulling, aided by a little pressure upon the parts of the bones nearest the joint. Dislocations of the thumb are, even for surgeons, sometimes almost impossible to put in place.

There is another dislocation which may be treated by almost any one. And this is fortunate, since it is very awkward, and very trying to the patient. It may occur at any time and under the most unexpected circumstances. Within a few years a clergyman of this city went to a hospital to visit a parishioner, and while passing through

a corridor, gave a tremendous gap. With a little snap the lower jaw bone slipped out of joint, leaving him unable to close his mouth; of opening it wider there could be no question. In this unfortunate predicament the intended exhortation had to be postponed, and the services of the resident surgeon called for, to reduce the dislocation; after which, with a face all bandaged up, the poor man went to his home, with a very vivid impression of what may come of a yawn.

To reduce a dislocation of this sort, the sides of the jaw must be seized between the thumb and fingers of each hand, with the thumbs resting on the teeth and the fingers below the jaw, and firm pressure be made, first downward and then backward. It must be remembered to cover the thumbs with several thicknesses of cloth, and as soon as the jaw starts into place, to slip them off to the outer side of the teeth, inside the cheeks, or the releaser will be rewarded by having his thumbs mashed between the upper and nether millstones. He must be quick as lightning, too, for the muscles do not wait, when they have been so unnaturally on the stretch, but bring the lower teeth against the upper like a hammer.

There is still another form of dislocation of the jaw, in which this is just a little open and cannot be opened any wider or closed. The thing to do in such a case is to slip a strong spoon handle or table knife in between the teeth and pry the jaw wider open. This will make the bone slip back into its place.

Dislocations of other joints ought not to be tampered with at all. The best that can be done is to put the parts in the position easiest to the sufferer, surround the joint with cold, wet cloths, and send for a surgeon. The risk of doing injury by injudicious efforts to set a joint is greater than that of waiting till a surgeon can be summoned.

FRACTURES.

Broken bones call for treatment as various as they themselves are. Most of them require special appliances known only to surgeons, and no attempt should be made by any one who has not surgical training to do more than treat a fracture temporarily. However, until a surgeon can be gotten, the following suggestions may be adopted, as far as the circumstances will permit. In breaks of long bones, like those of the leg or arm, draw the

limb out a little, make it as straight as possible, (comparing it with its fellow of the opposite side) and place under it a pillow. Then pass broad bandages around this, and tie them together over the limb, so as to draw the sides of the pillow pretty firmly up against it. This is simply for the pur-

pose of keeping it still. Then cold, wet cloths should be frequently applied to the surface of the limb, so as to prevent, as far as possible, the swelling which usually comes on soon after a fracture, and which often interferes very much with the examination of the surgeon.*

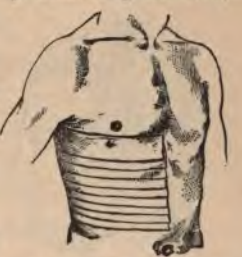
In fractures near any joint it is best to bend

*There is nothing in which there is a greater call for ingenuity and fertility of resource than in extemporizing splints for broken bones. Pasteboard, leather, shingles, pieces of cigar box—anything fairly smooth and stiff, may be used. A surgeon at the seashore got himself no little credit once by setting a broken arm on the beach, folding up and using as a splint a large newspaper which he had been reading. When a leg is broken, the other one will make a good temporary splint.

the joint a little, and lay the limb flat on a pillow, keeping it cool and moist. These breaks are especially grave, and demand the best skill that can be obtained.

Fractures of bones that lie deep in the body, like the hip bone or the shoulder blade, are very hard to detect, and can be treated only by rest and coolness till a surgeon comes.

The same may be said of *fractures of the ribs*, though one might put on the side of the chest, where the break is, long strips of sticking plaster, about an inch and a half wide, placed parallel to the ribs, beginning at the lowest part of the chest and going up, each strip being made to overlap the one below about half its width. The strips should extend from the spinal column to the middle of the breast bone. This makes the chest wall more rigid and prevents the rubbing together of the broken ends of the bone.



In fractures of the collar-bone the patient should be laid on his back, on a hard, flat, hair mattress, or on a settee, with a folded blanket under him

(never on feathers), without any pillow, and kept so until the surgeon comes.

In fractures of the skull there is nothing the non-medical can do better than putting the patient at rest, lying down, and placing cold, wet cloths to the head.

Fractures of the spinal column (broken back) are very hard to detect, but if one be suspected the patient must be moved as little as possible.

He had best be laid out upon his back, and, if possible, not be disturbed till the surgeon directs it. Turning such a patient over upon his face is dangerous, and must not be permitted.

In fractures of the jaw, close the mouth and put a bandage round, so as to keep the two rows of teeth against each other.

CLASS VI.

WOUNDS.

In going over these we will adopt the classification customary in works on surgery, viz., contused, lacerated, punctured, poisoned, incised and gunshot wounds.

CONTUSED WOUNDS.

Contused wounds are what are usually known as bruises, and almost all such as are caused by blows. They are sometimes very painful, and often followed by discoloration, due to the escape of blood under the skin from the small vessels of a part. A black eye is a familiar example of this sort of an injury.

They are best treated at first, when painful, by the application of cold, wet cloths. Later, when the pain has subsided, hot, wet cloths are best, as they favor the carrying off of the blood that has escaped.

LACERATED WOUNDS.

Lacerated wounds are tears, such as are often caused by machinery. These always require surgical skill. Till it can be obtained, however, the torn parts can be placed in as nearly their natural position as possible (after removing, with a stream of cold water squeezed from a sponge, any foreign matters that can be so gotten rid of) and covered with a cool, wet cloth. If the tear has been very great, and the sufferer is depressed and cold, tablespoonful doses of brandy or whisky may be administered, and a cloth wrung out of hot water placed over the injured parts.

PUNCTURED WOUNDS.

Punctured wounds are made with sharp, pointed objects, like pins, needles, fish hooks, glass, thorns or splinters.

Pin wounds rarely do much harm.

If a needle is run into the flesh and comes out, always see that it is all there; and if any part, from point to eye, is missing, call a surgeon. Meanwhile keep the wounded part perfectly still, and make no attempt to remove what remains. This would probably be quite in vain, and would

only increase the difficulty of the surgeon's work when he arrives. The broken needle should be carefully kept and shown to him, as he will then know better what to look for in his examination.

A fish hook is a troublesome thing to get in one. If this should happen, the best thing to do would be to cut off the string, push the point of the hook through, and draw it out, like a needle in sewing. If it can be done, the broad part of the hook may be cut off before trying this. But this is not easy for the operator or the patient.

Wounds from splinters of glass are quite beyond most people's skill. They are best treated with cold, wet applications, and left otherwise entirely to the surgeon.

Thorns rarely do much harm unless they are poisonous, and wounds of this sort we shall consider later.

Splinters are dangerous in proportion to their size and the part they enter. Small splinters may be picked out with a needle. Splinters under the nails are sometimes too hard for removal by the non-medical. Splinters in the eye should be pulled out, if possible. If not, the eyelid had better be gently closed, both eyes covered with a

layer of cotton soaked in cold water, and a bandage placed round the head, so as to keep the lids as still as possible. This bandage should not be too thick or put on too tight, and the application should be kept cold, with ice, if need be.

If a large splinter enters the body, an attempt may be made to pull it out; but a surgeon should be called without fail, and whatever of the splinter has been extracted carefully saved and shown to him. This will aid him in making up his mind whether the removal has been complete, and perhaps save much pain and danger to the patient.

POISONED WOUNDS.

Poisoned wounds may be considered here, as they are usually punctured, and result from the bites or stings of animals or insects.

The wounds of venomous serpents usually demand the prompt removal of the part bitten. It may be cut out instantly by any one who has the nerve to do it. Before this, perhaps, the part should be encircled, above the wound, with a tight ligature, and, if small enough, thrust into the mouth and sucked hard, so as to extract the poison. The

immediate application to the wound of hartshorn, is of advantage; and a knitting-needle, or nail, heated to redness, may be thrust into it. At the same time, whisky should be given, in doses large enough to cause drunkenness, and the intoxication kept up till medical aid can be secured.

The stings of insects are rarely dangerous to life. They may be treated with cold, wet applications—wet earth is a very good one.

The bites of cats are sometimes followed by severe inflammation; but the first treatment should be simply cleansing the bites, sucking them, perhaps, and applying cold to them for a time.

The bites of dogs are a terror to many people, while others have little fear and are very seldom bitten. Dogs seem to learn who do not fear them. If any one be bitten by a dog in good health, only the simplest treatment will be necessary. If the dog be sick, local inflammation, or severe constitutional disturbance may follow. In case of reasonable suspicion, the same course should be adopted as for bites of venomous snakes. Of course, too, sound medical advice will be taken.

It is a foolish thing to kill a dog that has bitten anybody, soon after this has taken place. Such a

dog should be caught and kept under the observation of some person of unquestioned carefulness, intelligence and special information. The too speedy slaughter of a dog has robbed many a sufferer of the assurance that would have been gained by seeing it living and well, and sent many a one to the grave, as dying of hydrophobia, who never had it, but had been bitten by a healthy and harmless animal.

Again, if one has been bitten, and there be a reasonable suspicion that the dog was "mad," let him not despair. Some of the most able and careful (that is the greatest matter) medical men are of the opinion that a great many cases of so-called hydrophobia have been spurious; that is, they were not hydrophobia at all. For myself, the more I have read on this subject the more convinced have I become that very few of the cases reported have really had hydrophobia; but that the most have been alarmed by what they thought, and frightened by what injudicious friends or timid doctors have said and done, until they died of sheer terror. So, in case of a bite from a supposed mad dog, let the things suggested above be done; then let quiet be secured, and the very best medical man in the place

sent for. It is a very serious matter, and calls for the clearest head and most extensive information. Whoever gets flurried and shows alarm at such times is scarcely less dangerous than the dog that did the biting. Then let no one breathe "hydrophobia," or talk about what has happened. By this the chances of escape will be increased.

This much is said, not to ventilate a theory, but with the belief that acting upon it will not increase the number of bites, while it may decrease the number of deaths from what is called "hydrophobia."

INCISED WOUNDS.

Incised wounds or cuts, if simple and small, call only for a piece of sticking plaster, and perhaps a bandage. If large, the edges should be brought as near together as possible, and supported so by sticking plaster, or bandages, or the hands, till the coming of the surgeon. If an entire part be cut off, as an ear, or a nose, or a toe, or a finger, it should be cleaned with lukewarm water, and put in its place, leaving to the surgeon the decision whether it be worth while to try to save it. Some very remarkable cases of reunion of such parts are

on record, and an attempt to save them is not to be lightly rejected.

Cuts of the walls of the abdomen are often followed by escape of a portion of the bowels. These, if dirty, should be cleansed, and a gentle effort made to restore them to their place. If this fails they should be covered with a clean white cloth, soaked in warm water and kept warm and wet by a gentle stream of water, or by laying on it a sponge soaked in warm water, which should be constantly renewed.

There is a *way* to wash such delicate structures as the intestines, or raw cut or torn surfaces, which may be described here—and it is a good plan to learn to do such things by practicing them before the emergency arises. Dip a sponge in water, and hold it in the closed hand, with the thumb uppermost, and a corner of the sponge hanging below the fist. Now, on squeezing it regularly, a single stream of water will flow softly and steadily down from it. The size of this stream can be regulated by the way the sponge is squeezed; the force by the height to which it is raised. This is the only way of cleaning off delicate tissues that is safe in the hands of the unexpert.

HEMORRHAGE.

Many wounds are subject to a serious complication, which we will now discuss. This complication is hemorrhage or bleeding.

Bleeding may come from the capillaries, the small vessels that intervene between the arteries and the veins, or from either of these latter.

Capillary hemorrhage follows every cut. The color of the blood is bright red; the flow is generally slow and not very considerable. It usually stops of itself. If it does not, cold water or ice may be applied, or even vinegar. If there is oozing from a large raw surface, a towel may be folded, dipped in water as hot as the hand can bear, lightly squeezed, so as not to drip, and laid upon the bleeding surface. This may have to be renewed once or twice, at intervals of a few minutes, but it usually acts like magic in this form of hemorrhage—the oozing.

Hemorrhage from the veins is also generally slow and steady in its flow, the blood being of a darker color than in other forms. It, too, is rarely of consequence or demanding special effort to control it. When severe, the application of

cold, and firm continuous pressure upon and below the wound, generally suffice to stop it.

Hemorrhage from the arteries is very dangerous. Here the blood is bright red, and spurts in a stream or leaps in jets from the divided vessel. If it be from a large artery, such as lie in the root of the neck or the armpit, or the inside of the thigh near the groin, life will usually be quickly lost. Indeed, without an acquaintance with anatomy, it is hardly likely that any advice that could be given here would be available in such cases. But every one may, while awaiting skilled aid, do something when the arteries of the limbs are cut. The first duty in all such cases is to be as cool as possible, then as quick as is consistent with coolness. The principle that must guide every attempt to stop the bleeding is to obstruct the artery between the centre of the body and where it is cut, for this is the direction in which the blood flows.

For wounds of arteries of the hand, raising this above the head and making firm pressure with the thumbs, just above and in front of the wrist, will usually stop the bleeding. If this fails, and for *Wounds below the elbow*, first grasp the upper part of the arm with both hands and squeeze as hard

as possible; then let some one make a thick, hard knot, as big as an egg, in the middle of a handkerchief, place it over the middle of the front of the arm, immediately above the elbow, tie the ends tight at the back, and bend the forearm up so as to press hard against the knot. This, if successfully done, will obstruct the main blood vessel (the brachial artery), which in this place lies in the middle line of the bend of the elbow.

For wounds in the upper arm, a knot as big as a fist may be made in any piece of cloth and shoved hard up into the armpit, and the elbow then brought straight down and held firmly against the side of the chest.

If either of these methods fail, or cannot be carried out, the "Spanish-windlass" may be used. To do this, place some hard, rounded body in the large part of a handkerchief folded diagonally, and carry the ends of this round the limb, so as to leave the lump over the position of the artery—that is, over the bend of the elbow, or a little in front of

the middle of the inside of the arm, near the shoulder. Then tie the ends of the handkerchief so as to make a loose loop, slip a stick through this and twist it round and round, so as to tighten the handkerchief, till the blood stops flowing. This is a much rougher procedure than the method described before, but one cannot be over-particular in such cases; so if the former fails, or no bystander is cool enough to carry it out, no time must be lost before the "Spanish-windlass" is used.

Wounds of arteries of the foot or leg may be treated by firm pressure in the hollow just behind the knee (above the calf of the leg). This can be effected by placing there a knotted cloth, like that suggested for the armpit, and doubling the leg back until it presses hard against it.

For wounds in the thigh, pressure must be made in the hollow immediately below the groin, about two-thirds of the way from the hip bone to the middle line of the body, where the artery of the thigh (the femoral artery) comes out of the body. This can also be effected by placing there a big knot, and doubling the leg back on the thigh (this is important), and the thigh forward, hard against the abdomen. In case of failure of any of these

methods, the "Spanish-windlass" may be used (as already described), so as to make pressure at the points indicated for each case.

To go over this briefly again: Remember, first, to keep cool; second, the principal object, to obstruct the blood vessel above the cut—and that this can be effected by a knot placed, in the several cases, in front of the bend of the elbow, in the armpit, behind the bend of the knee, or just below the groin, against which the nearest part of the limb is to be firmly pressed; or, in case of failure, the "Spanish-windlass," applied to the same places.*

In case none of the plans proposed can be carried out, a cut that bleeds profusely may be stuffed with a rag or dry earth, and this kept in place by pressure, or the cut part may be forcibly compressed in any way, or a finger thrust into the wound and held wherever it seems to do most good.

* These suggestions are not imagined to be complete, nor do they cover every case that may arise; but they are meant to be simple, reasonably easy to follow, and calculated to control the bleeding until a surgeon is at hand to put a permanent stop to it. I do not care to impair what I trust may be their usefulness by introducing further details, which might only confuse, without materially increasing the resources of one who may have to act in such a critical moment.

SPECIAL HEMORRHAGES.

Bleeding from the nose is sometimes so profuse as to threaten life. If this be the case, of course medical aid will be summoned; but until it arrives the best thing that can be done is to snuff vinegar up the nose, or plug the nostrils, from the front, with cotton thoroughly soaked in vinegar. A strong solution of alum in warm water is also useful; but vinegar is less disagreeable, and will rarely fail, unless the case is beyond any except skilled help.

In hemorrhage from the lungs the blood is bright red and generally frothy. It is rarely profuse, and yet as it is usually coughed up and caught in a handkerchief, it seems to be so. The amount can never be safely estimated in this way. The best treatment is rest in bed, with the body raised in the sitting posture, and the swallowing of lumps of ice. The application of cold to the chest, if the patient is not too weak, is of some use.

In hemorrhage from the stomach the blood is usually very dark, looking like coffee grounds. If it is mixed with any other contents of the stomach, its appearance may be masked. In such

cases broken ice may be swallowed, and teaspoonful doses of vinegar. Rest in bed must, and the application of cold to the stomach may, be employed.

In internal hemorrhage ice-cold cloths may be placed upon the abdomen. Rest in bed, without a pillow, and *with the head lower than the body*, must also be secured.

GUNSHOT WOUNDS.

There is another class of injuries occasionally met in civil life, though not common. These are *gunshot wounds*. Ordinarily little can be done for them, except by a surgeon; and perhaps all that is advisable before he comes is to note and remember the position of the body or the wounded part at the moment it was struck, and the direction from which the missile came, so that these facts may help the surgeon in his search for it.* Then cold wet cloths, upon which laudanum may be poured, should be kept upon the wound, to prevent, as far as possible, inflammatory swelling; and if, as is

* To show how strange may be the course of a bullet, I will cite a case that occurred in 1876. A young man was shot with a pistol. The ball passed through his lower lip, struck an upper front tooth, which it broke off, then glanced downward and backward, diagonally through the tongue, and finally buried itself in the floor of the mouth, on the other side from that where it entered the lip.

very often the case, the patient be cold and depressed, a stimulating dose of wine, whisky or brandy should be given. If a part is badly shattered, the local treatment should be the same, except that, if there be much depression, cold had better not be used at all. There is rarely much bleeding from gunshot wounds, except when large vessels are divided. In such a case hemorrhage may be controlled as described under this head.

CLASS VII.

RAILROAD AND MACHINERY ACCIDENTS.

The injuries received in *railroad and machinery accidents* are usually of the classes described as Contused and Lacerated Wounds (see pages 37 and 38), and only to a limited extent within the ability of the amateur surgeon. The best that can be done under the circumstances is to control any hemorrhage that may occur and combat the shock which almost always follows, by the judicious use of alcoholic stimulants. In case of great pain, cloths soaked in cool water, to which laudanum (almost without limit) has been added, may be laid upon the injury for the time being. Then the injured part should be placed in a position as comfortable as possible, and the patient removed to a place suitable for subsequent treatment.

TRANSPORTATION OF INJURED PERSONS.

If injured persons have to be conveyed from

been used, it will be all the better for that, as soap is an antidote for acid poisons. The quantity used must be large; the sufferer must be urged to drink and drink, a pint at a time, until he can contain no more, and has been made to vomit over and over again.

After copious vomiting, soothing liquids should be given—oil, milk, beaten-up raw eggs—all in moderately large quantities. These are especially valuable when the poison has been of an irritating character.

If the sufferer be much depressed in body or mind, the hands and feet cold, the lips blue, the face pale, a cold perspiration upon the forehead and about the mouth, then some stimulant may be administered. Strong, hot tea, without milk, is the best, because it is a chemical antidote to many poisons. Strong coffee is next in value. To either of these can be added brandy, whisky, wine, or alcohol, in tablespoonful doses for an adult, and half as much for a child; or the spirits may be mixed with a little hot water. Warm coverings are not to be forgotten; and if the depression be great, hot-water cans or hot bricks, wrapped in one or two thicknesses of blanket, should be laid

by the side of the chest, or a huge poultice placed round the body, or a blanket, wrung out of hot water and covered with a dry one.

II. *Acid Poisons.* *Oil of vitriol* (*sulphuric acid*) *and nitric and muriatic acids* are heavy, sometimes yellowish-looking, fluids; the first, as its name implies, not unlike oil in appearance, but very heavy in a bottle. The others are lighter, and give off extremely pungent, irritating fumes. All discolor anything on which they fall; the first blackens pine wood, the others turn it yellow. All burn horribly, and leave no doubt of their caustic nature.

For these the proper treatment is to give an alkali. A tablespoonful of hartshorn may be mixed with two teacupfuls of water, and given; or almost unlimited quantities of soda, magnesia, lime, whitewash, chalk, tooth powder, whiting, plaster, soap or even wood ashes, stirred up in water.

After this should come the provoking of vomiting; then the bland fluids mentioned above should be administered, rest secured and stimulation employed, if necessary.

Oxalic acid comes in small, heavy, bright, colorless crystals, making a clear rattle in a bottle or jar.

For this the best antidote is lime in some form. If lime water is at hand, it may be given freely, or whitewash, tooth powder, chalk, whiting, or plaster from a wall. The latter may be crushed and stirred up in water, without regard to the grittiness, which will not do any harm.

Carbolic acid is usually in solution, as a thick, clear or dusky fluid. When taken by the mouth it causes whitening and shriveling of the mucous membrane lining it, with intense burning and then numbness. There are also nausea, weakness and depression, sometimes actual collapse. It is a very dangerous poison, because it acts rapidly and benumbs the stomach, so that it is hard to provoke vomiting. This must be attempted, however, and large draughts of oil or milk given. Rest, warmth of the body and stimulation must also be secured

III. *Alkaline Poisons.*—The *strong alkalies* are *ammonia*, or hartshorn—which is a clear fluid with an unmistakable odor—*potash* and *soda*, usually dissolved, and sometimes in the form of lye. Liniments sometimes contain these substances, and are swallowed by mistake.

The alkalies usually burn intensely. They must

be combated with an acid. Vinegar can always be had, and there is nothing better. It should be given undiluted, and a pint at a time, if possible. Lemon juice may be used, or even orange juice, though the latter is too mild an acid to be of much service, unless the oranges are very sour. Vomiting should then be provoked, and followed by bland acid or oily drinks, rest and stimulation, if necessary.

Arsenic, sugar of lead, corrosive sublimate and tartar emetic are not infrequently taken by mistake, because they are used for various household purposes.

IV. *Arsenic* comes as a white, sweetish powder, often used to destroy domestic pests. It usually excites vomiting and violent pain in the stomach. The vomiting must be encouraged or provoked, and dialysed iron given. This can now be obtained at any drug store, and should be given freely, in tablespoonful doses, each dose being followed at once by a teaspoonful of common salt in a teacupful of water. Afterward vomiting should be again provoked, followed by a dose of castor oil.

Paris green is an arsenical preparation. If taken as a poison, it must be treated like simple arsenic.

V. *Sugar of lead* comes in white lumps or powder, and calls for vomiting, Epsom salts, milk, eggs, and castor oil.

VI. *Corrosive sublimate* comes in small, colorless crystals, or in a clear solution. If taken, vomiting must be provoked and some form of tannic acid given. Tea is the handiest thing containing this, and its administration should be followed up with eggs and milk.

Tartar emetic, a white powder, is best treated in the same way.

VII. *Phosphorus* is sometimes chewed off of matches, by children. It is a poison which acts slowly, and affords ample time for securing medical advice. But five-grain doses of sulphate of copper, dissolved in water, may be given, at intervals of ten minutes, until vomiting comes on. Then a dose of magnesia should be administered; but no oil.

VIII. *Opium Preparations.*—These are *opium*, *laudanum*, *paregoric*, *black drop*, and the many poisonous nostrums sold as soothing-syrups, pain-destroyers, and drops for infants. Their symptoms are deep sleep, with narrowing of the pupil of the eye to a small circle, which does not en-

large in the dark. Here emetics must be used promptly and persistently, and vomiting produced over and over again. Strong coffee must be freely given, as a stimulant. So long as the breathing does not fall below ten to the minute, there is no *immediate* danger of death; but opium is a treacherous poison, and requires all the skill that can be obtained to combat it. The important matter is to keep up the breathing. The custom of walking a patient up and down and slapping him with wet towels is to be deprecated, because it adds exhaustion to stupor. If an electrical battery can be obtained, and used, it is the best thing that can be done. The next is to lay the patient upon a lounge and slap his skin with the back of a broad brush or with a slipper. This is all the rousing that is necessary, so long as the breathing keeps above ten to the minute. Should it fall below this, or if the breathing should cease, artificial respiration should be employed. (See pages 12 and 13.)

Chloral is a damp, colorless, crystalline substance, usually seen in solution. Its symptoms and treatment are the same as those of opium.

IX. *Strychnia* is an intensely bitter, white

powder. It produces stiffness of the jaws, then of the limbs and body. It should be treated by provoking vomiting, giving a purge, and doses of thirty grains of bromide of potash, or twenty grains of chloral, or both to an adult. The greatest quiet must be secured. The poisoned person should be put to bed in a darkened room, with doors, windows and shutters arranged in a way that shall exclude all sights, sounds and draughts, though permitting good ventilation.

X. *Aconite* is sometimes contained in liniments, and swallowed by mistake. In such a case vomiting must be brought on, and followed by the administration of stimulants. Strong coffee may be used, hartshorn (a teaspoonful in a teacupful of water), wine, whisky, or brandy, The patient will often feel a peculiar numbness or tingling in the arms or legs, which is an evidence that the poison has entered the blood, and makes the attention of a physician imperative. If there is depression, warmth should be used, as described when speaking of unknown poisons.

XI. *Lunar caustic* is sometimes swallowed. The antidote of this is a very strong brine of salt and water, given again and again; and vomiting

should be provoked, until the vomited matters cease to have a look like thin milk.

XII. *Alcoholic liquors* are sometimes taken in such large quantities as to be poisonous. When this is the case there are evidences of deep stupor or depression. The course to be pursued is to cause vomiting, give hartshorn and water (a teaspoonful in a teacupful), and keep the body warm. (See page 23. *Intoxication.*)

XIII. *Hemlock, deadly nightshade,* the *Jamestown* (or *jimson*) *weed, monkshood* and *toadstools* are sometimes eaten, without knowledge of their poisonous character. *Tobacco,* too, sometimes causes poisonous effects. All produce deep depression, and must be treated with vomiting, followed by stimulation and warmth, very much as in the case of aconite poisoning.

XIV. *Decayed meats or vegetables* usually excite vomiting, which should be encouraged till the stomach is empty, and followed by a dose of castor oil and some powdered charcoal.

To save time in an emergency, the following table may be consulted; for the details of treatment reference may be made to the sections indicated by the numbers.

POISON.	TREATMENT.
1. Unknown.	Provoke repeated vomiting; Give bland liquids; Stimulate, if necessary.
2. Acids— Sulphuric, Nitric, Muriatic, Oxalic.	Give an alkali; Provoke vomiting; Give bland fluids; Secure rest; Stimulate, if necessary.
3. Alkalies— Hartshorn, Soda, Potash, Lye.	Give an acid (vinegar); Provoke vomiting; Give bland liquids; Secure rest; Stimulate, if necessary.
4. Arsenic— Paris green, Scheele's gr'n.	Provoke vomiting;* Give dialysed iron and salt;* Give a dose of castor oil; Secure rest; Stimulate, if necessary.
5. Sugar of Lead	Give Epsom salts;* Provoke vomiting;* Give bland liquids; Give dose of castor oil.
6. Corrosive Sublimate, Tartar Emetic.	Provoke vomiting;* Give strong tea, without milk;* Give raw eggs and milk; Give dose of castor oil; Stimulate, if necessary.
7. Phosphorus	Provoke vomiting; Give five-grain doses of sulphate of copper; Give dose of magnesia, but *no* oil.
8. Opium— Laudanum, Paregoric, etc., Chloral.	Provoke vomiting, repeatedly; Give strong coffee, without milk; Keep up the breathing.
9. Strychnia	Provoke vomiting, once or twice; Give a purgative; Secure absolute quiet.
10. Aconite	Provoke vomiting; Stimulate well.
11. Lunar Caustic (Nitrate of Silver)	Give strong salt and water;† Provoke vomiting.†
12. Alcohol	Provoke vomiting; Give hartshorn and water.
13. Jamestown Weed, Hemlock, Nightshade (belladonna), Toadstool, Tobacco.	Provoke vomiting; Stimulate well.
14. Decayed Meat or Vegetables.	Provoke vomiting; Give a purgative; Give powdered charcoal.

* Repeat several times. † Repeat many times.

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